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Ministry of Economic
Development
Manatū Ōhanga

Intellectual Property Office
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CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that annexed is a true copy of the Provisional Specification as filed on 24 October 2002 with an application for Letters Patent number 522198 made by ASSA ABLOY FINANCIAL SERVICES AB.

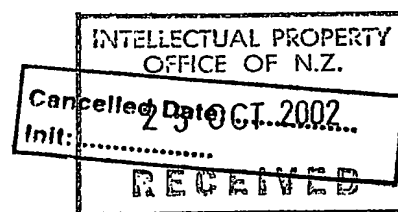
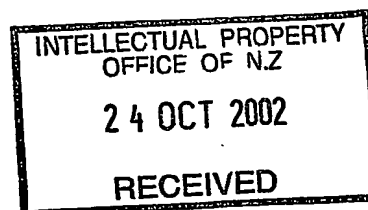
Dated 5 November 2003.

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Neville Harris
Commissioner of Patents, Trade Marks and Designs





NEW ZEALAND

Patents Act 1953

PROVISIONAL SPECIFICATION

A SELF-LATCHING LATCH DEVICE

WE, Assa Abloy Financial Services AB a Swedish company of Klarabergsviadukten 90, SE-107 23, Stockholm, SWEDEN do hereby declare this invention to be described in the following statement:-

This invention relates to a latch device and more particularly one which is self-latching. The latch device is primarily intended for the latching of a sliding window sash in the closed position.

Currently there are a number of self-latching window sash latches available on the market. In most cases the latch operates after the window has been physically closed. Thus when the latch has reached the same level as the strike it latches the window in the closed position. To open the window an operating member e.g. a pull lever is operated and is held in the "open" position until such time as the latch has been lifted or slid past the strike. The operating member is then released.

One problem with this type of latch device arises when disengaging the latch from the strike. As described above the action of opening the window involves holding the operating member and at the same time physically lifting or moving the window. Not only is this action awkward to perform but it can be very difficult to perform on, large windows, windows without finger grips, windows with more than one latch and windows which have limited/restricted access.

A second problem is related to security and safety. With known latches there is no indication once the window sash has been moved to its fully closed position as to whether the latch has in fact successfully engaged with the strike. Thus a window thought to be latched may, in fact, be unlatched which can give rise to potential safety and security risks.

An object of the present invention is thus to provide a sash latch that self-latches when the window sash is moved to the closed position and provides an indication if the latch has not completely latched.

It is a further object of the present invention to provide a sash latch which permits the latch to be activated such that after activation the user can use both hands to pull or slide the window sash into an open position.

Broadly according to one aspect of the invention there is provided a sash latch of a self-latching type including a primary bolt for engagement with a strike, the primary bolt being coupled to an operating mechanism whereby the primary bolt is moveable from a latching position to a retracted position, retaining means to retain the primary bolt in the retracted position and an activation means

operable to release the retaining means to enable the primary bolt to move from the retracted position to the latching position.

Preferably the latch includes an indicator element which projects from the latch to indicate that the primary bolt is not in its latching position.

In the following more detailed description of the present invention in its preferred form, reference will be made to the accompanying drawings in which:-

Figure 1 is a perspective view of the latch device according to the invention,

Figure 2 is a front elevation view of the latch device,

Figure 3 is an exploded perspective view,

Figure 4 is a top perspective view with the cover removed and the latch device in the closed position with a strike,

Figure 5 is an underside view of the arrangement shown in Figure 4,

Figure 6 is a cross sectional view of the latch device when mounted with a section of a window sash,

Figure 7 is an exploded view of a second embodiment of the latch device,

Figure 8 is a sectional view of the second embodiment, and

Figure 9 is an underside view of the second embodiment but with the base removed.

The sash latch according to the present invention includes a cover 10 of suitable plastic or die cast zinc construction. The cover 10 is able to be e.g. slide clip mounted onto a chassis 11. This chassis 11 is preferable of die cast zinc construction. A latch element as hereinafter described is engagable with a strike 12. A button 13 is provided with cover 10 for operation of the latch element. The latch device further includes a base 14 which in the preferred form is plastic.

According to the present invention the latch element comprises a primary bolt 15 and a secondary bolt 16.

These components can be of a suitable plastic or metal. The primary bolt 15 is located in an opening 17 in the chassis 11 such that projecting edges 18 of the primary bolt 15 slidably engage with shoulders 19 at each side of opening 17. The primary bolt 15 is held in place in the chassis 11 by a base 14. The base 14 is clip mounted onto the chassis 11 by two pairs of spring clips 20 which as shown in e.g. Figure 4 clip over opposed edges of an aperture 21 in the chassis 11.

The primary bolt 15 has a passageway 22 in which the secondary bolt 16 is slidably engaged. A pair of springs 23 are provided for biasing the primary bolt 15 and the secondary bolt 16 to a "projecting" or latching position. One end of a spring 23 is located in a bore 24 in the secondary bolt 16. The other spring 23 is located in a recess 25 in the primary bolt 15.

Each of primary bolt 15 and secondary bolt 16 have a projecting lug 26 which slidably engage in slots 27 in the floor of base 14. Thus with the secondary bolt 16 located in passageway 22 of the primary bolt 15 and the primary bolt 15 held in position in opening 17 in the chassis 11 by the clip fastening of base 14 to the chassis 11 the free ends of the springs 23 engage against a surface formed by wall 28 of the chassis 11. The

primary and secondary bolts 15/16 are thus always biased to a projecting position (see for example Figure 5) as will hereinafter become apparent.

Attached to or forming part of the primary bolt 15 is an indicator 29. This is an elongate member which is slidably engaged through an opening 30 in wall 28. Opening 30 is aligned with an opening 31 in cover 10 when the cover 10 is clipped onto the chassis 11.

The button 13 has a downwardly projecting spigot 32 which engages through an elongate slot 33 in the top of the cover 10. Spigot 32 engages in an opening 34 in the primary bolt 15.

In use, the chassis 11 (after primary/secondary bolts 15/16 and base 14 have been clipped into place) is fastened to a section of a window sash S. This is achieved by mechanical fasteners such as screws, bolts etc. engaging through openings 42 in the chassis 11. Once the chassis 11 has been fastened into place the cover 10 is clipped over the chassis 11 which results in the button 13 engaging with the primary bolt 15.

In a conventional manner the strike 12 is mounted to another section which forms the opposing part of a sash

or window frame as the case may be. In Figure 6 the strike 12 is shown fastened to a fixed window frame W though equally in a double sliding sash arrangement the strike 12 would be fitted to the second sash.

To further describe the invention the latch and its associated strike 12 are considered to be mounted to the sash S and frame W with the primary bolt 11 projecting into the strike 12 (see for example Figure 6). Because of the presence of the wall 39 of the strike 12 sash S is not able to move relative to frame W. However, if a sliding action is applied to the push button 13 so that it moves in the direction of arrow A (see Figure 6) the primary bolt 15 will be moved so that the beak portion 43 of primary bolt 15 clears the wall 39. This means that the beak 43 of the primary bolt 15 moves out of the cavity 37 in the strike 12.

This movement, however, also results in the secondary bolt 16 engaging the trigger clip 38 to thereby release the primary bolt 15. Consequently, the primary bolt 15 moves back to its projecting position in preparation for self latching with the strike when the window is closed.

When the primary bolt 15 is moved in the direction of arrow A it comes into engagement with a trigger spring

clip 38 in the base 14. As a result the primary bolt is held in the retracted position. This therefore enables the user to use both hands to cause the sash S to be moved relative to the frame W.

The secondary bolt 16 has a double inclined leading edge formed by oppositely inclined surfaces 35 and 36. When primary bolt 15 is retracted the secondary bolt still protrudes into cavity 37. However, as the sash S is opened surface 35 of the secondary bolt 16 contacts the edge of wall 39 which causes the secondary bolt 16 to be pushed back into the primary bolt 15 for a distance sufficient to enable the secondary bolt 16 to clear the strike 12.

When the window is moved back to the closed position the leading surface 36 of secondary bolt 16 comes into engagement with wall 39. This causes the secondary bolt 16 to be moved (in the direction of arrow A) relative to primary bolt 15. In the event that the primary bolt 15 has been held in the retracted position (by someone holding the primary bolt 15 when opening the window) the movement of secondary bolt 16 results in secondary bolt engaging with the trigger clip 38. This activates the clip to cause release of the primary bolt 15.

The beak 43 can thus contact the edge of wall 39 such that when the sash is moved to the fully closed position the beak may enter the cavity 37. The latching device therefore self-latches when the latch reaches the same level as the strike.

Consequently during both opening and closing of the window the secondary bolt 16 can cause release of the primary bolt. This ensures that the primary bolt 15 will always self latch.

As shown in the drawings the chassis 11 also has a pair of protrusions 40 which are parallel and spaced apart. These correspond in position with two cavities 41 one of which is located either side of the main cavity 37 of strike 12. As the window S is closed these protrusion 40 (whose geometry is such as to accommodate window tolerance variance) come into contact with the corresponding cavities 41 in the strike 12. They thereby align the latch to the strike in the horizontal, vertical and lateral planes.

Referring now to Figures 7, 8 and 9 a second embodiment of the latch device is illustrated. This embodiment of the invention incorporates an anti-tamper feature which prevents the primary bolt 15 from being forcibly

retracted through manipulation from outside of the dwelling (i.e. the bolt being pushed back from striking engagement by use of a blade etc.). According to this embodiment of the invention the button 13 must be used in order for the latch to be moved to an unlocked position.

The anti-tamper feature includes an anti-tamper clip 43 which is situated in the base 14. As the base 14 is in the preferred form of plastic construction the anti-tamper clip 43 can be integrally formed with the base 14. The anti-tamper clip 43 has the function of preventing the primary bolt 15 from retracting. This is achieved by the distal end 43¹ of the clip 43 engaging against edge 44 of the primary bolt 15.

In this form of the invention the button 13 which is clipped into cover 10 and is slidably moveable has a profiled or sloping end 45 on the spigot 32. The spigot 32 engages in an opening in the primary bolt 15 as previously described but in this embodiment the opening 34' is elongate. Consequently a lost motion in bolt 15 is achieved. Thus if the primary bolt 15 is tampered with the bolt will slide back and engage with the anti-tamper clip 43 but the button 13 will not move because of the lost motion.

The anti-tamper clip 43 is moved out of the way of the primary bolt 15 by the profiled end 45 of the button 13 sliding over the clip 43 hence pushing the clip clear of the primary bolt. The button then continues to retract the primary bolt 15 in the normal manner.

In the form of the invention as illustrated the primary bolt 15 if forced back by external manipulation moves approximately 1.5mm before it is stopped by the anti-tamper clip 43. As indicated above the button 13 does not move during this movement of the primary bolt 15. As a result there is no "redundant" travel of the button 13 during normal operation. Therefore, the anti-tamper feature is not readily discernable to the user as it is a feature which only comes into effect if attempts are made to forcibly open the latch from the outside.

It is believed that the present invention addresses the problems previously identified and associated with known self-latching window sash latches. It achieves these objectives as follows:-

- The action to disengage the latch from the strike is a "once-off" finger motion which results in the sliding movement of the button 13. Once this motion is completed the primary bolt 15 is held in the

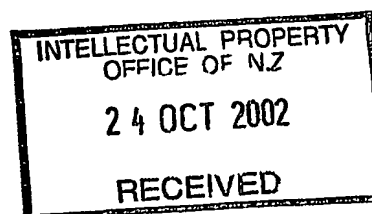
retracted position which, therefore, allows the user to remove his or her hands from the latch without the primary bolt 15 re-engaging in the strike 12. The user therefore has both hands free to open the window sash.

- The latch provides clear visual indication of whether the strike has been successfully engaged. Thus if the indicator 29 is protruding from opening 31 in cover 10 this is an indication that the primary bolt 15 has not moved back to its fully projecting position i.e. has not fully latched. The indication is visible from a distance and allows a user to quickly assess if the window is secure.
- The latch according to the present invention provides the above identified features without introducing additional steps to its operation. It retains all the benefits of a self-latching latch while providing features not normally available with self-latching latch devices.

The combination of self-latching, indication and hands free operation is achieved by having the secondary bolt, the trigger spring clip 38 and primary bolt 15 all dependant on each other for timing, position and overall function. This, however, is achieved in a straight forward and operationally effectively manner.

ASSA ABLOY FINANCIAL SERVICES AB
By its Attorneys
DON HOPKINS & ASSOCIATES

PER:

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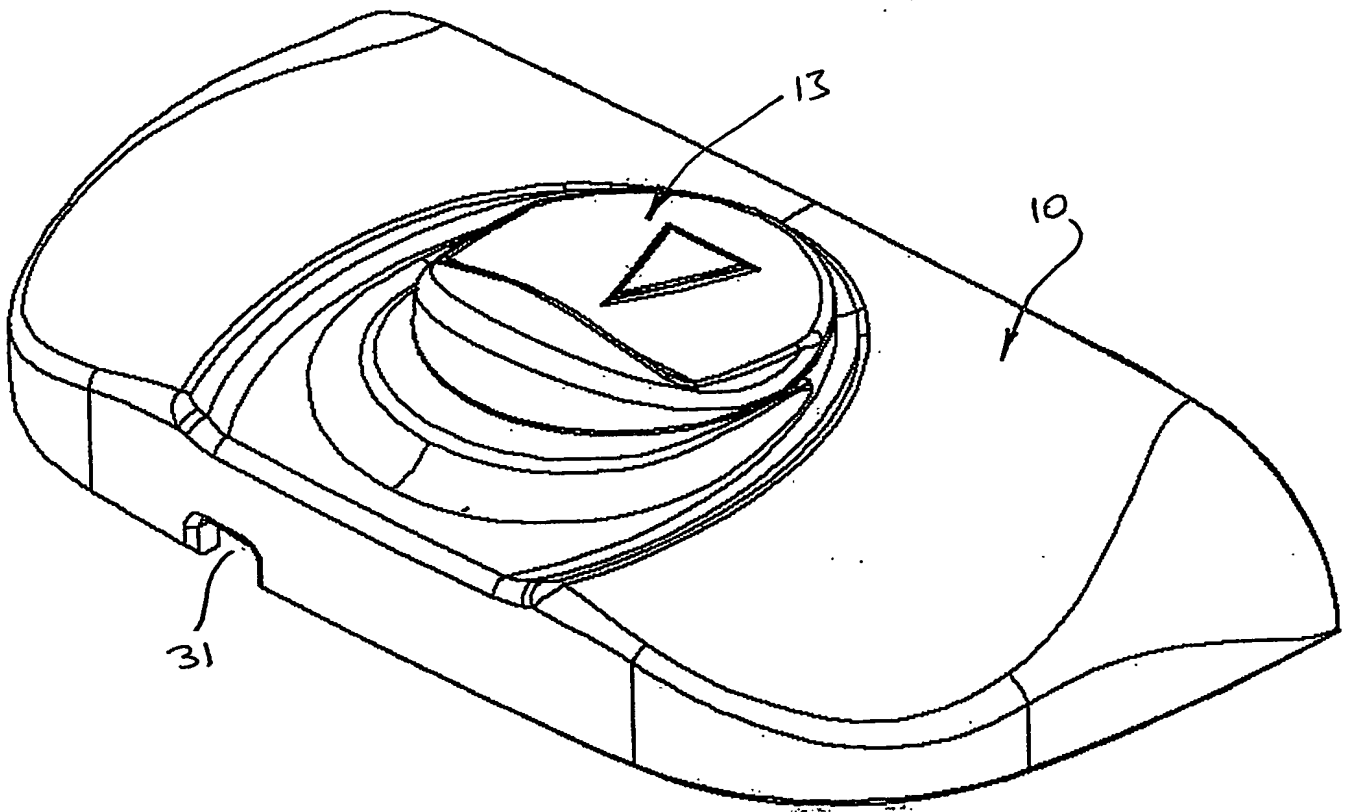


FIG. 1.

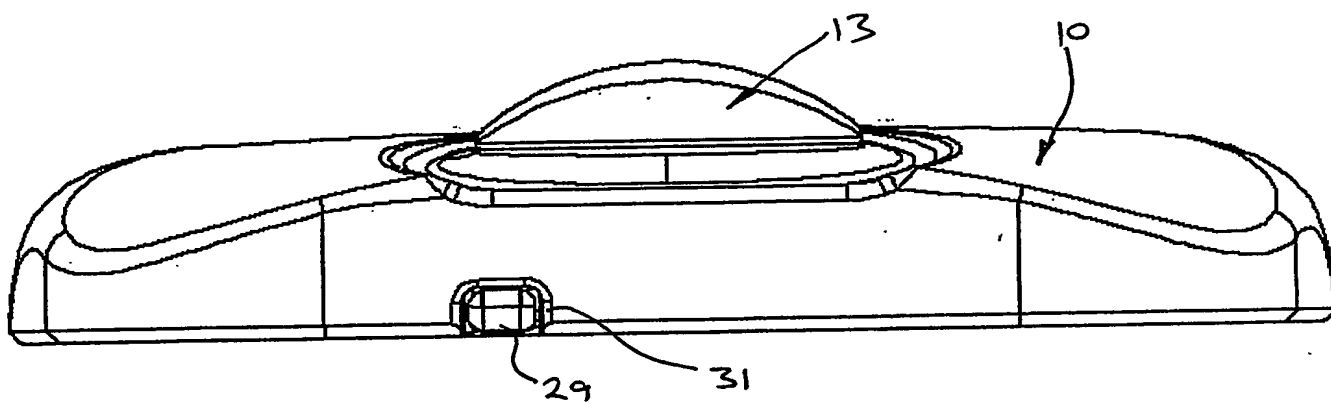


FIG. 2.

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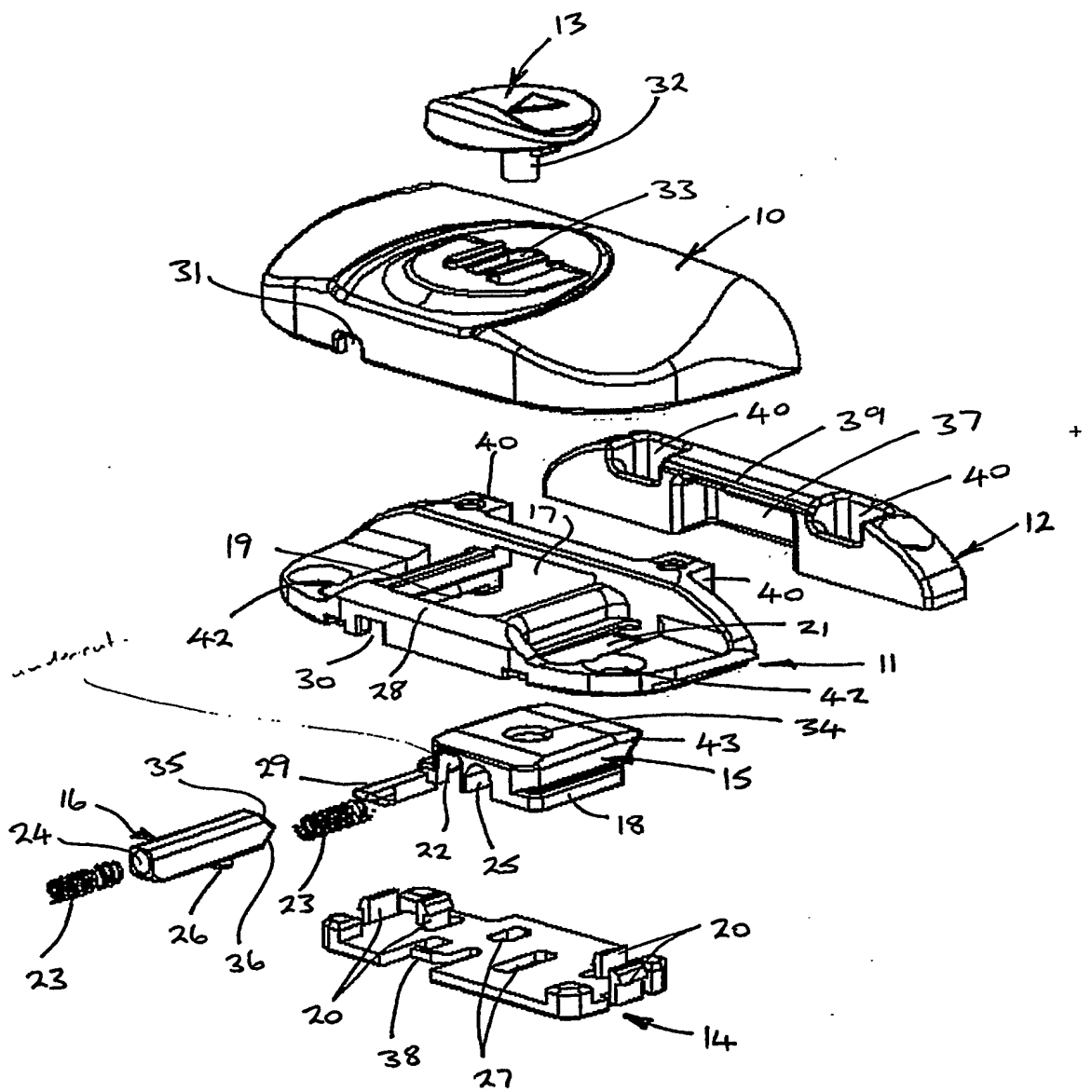


FIG. 3.

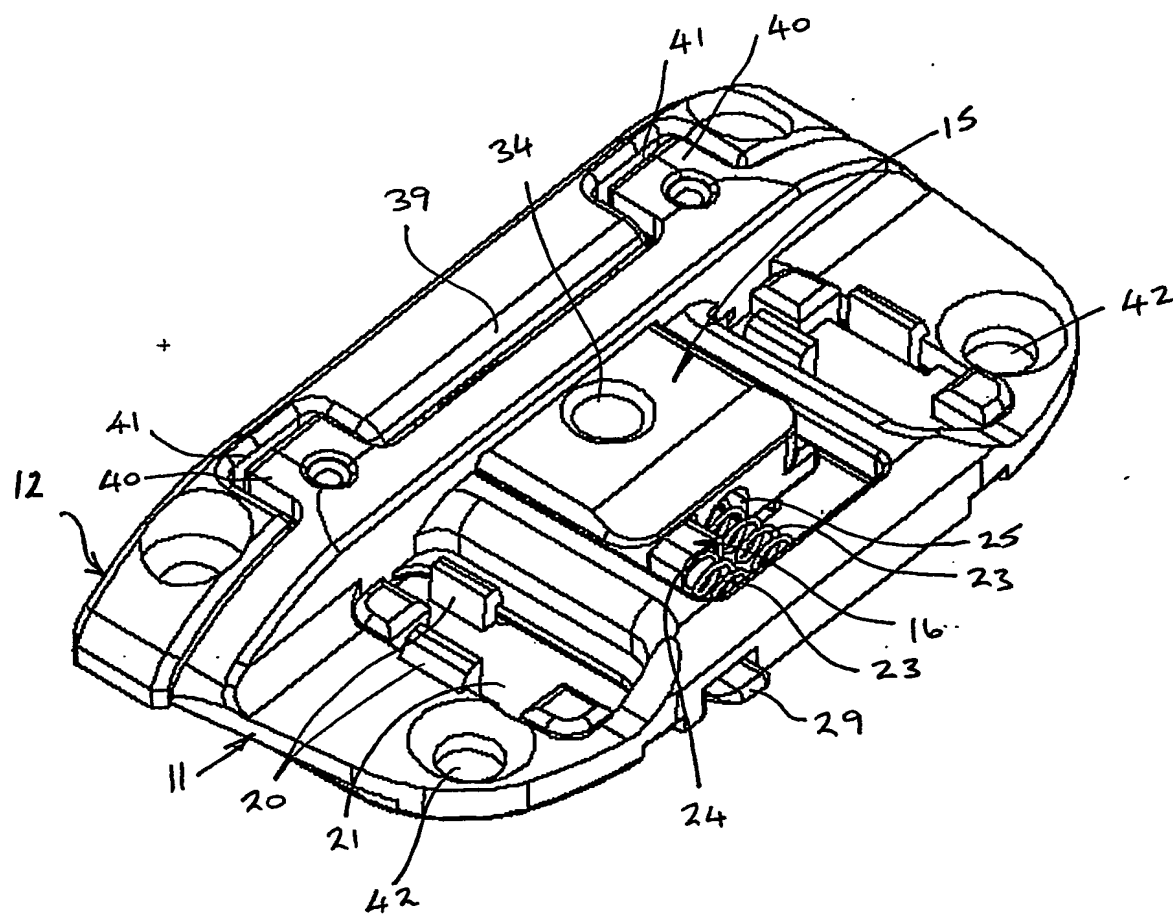


FIG. 4.

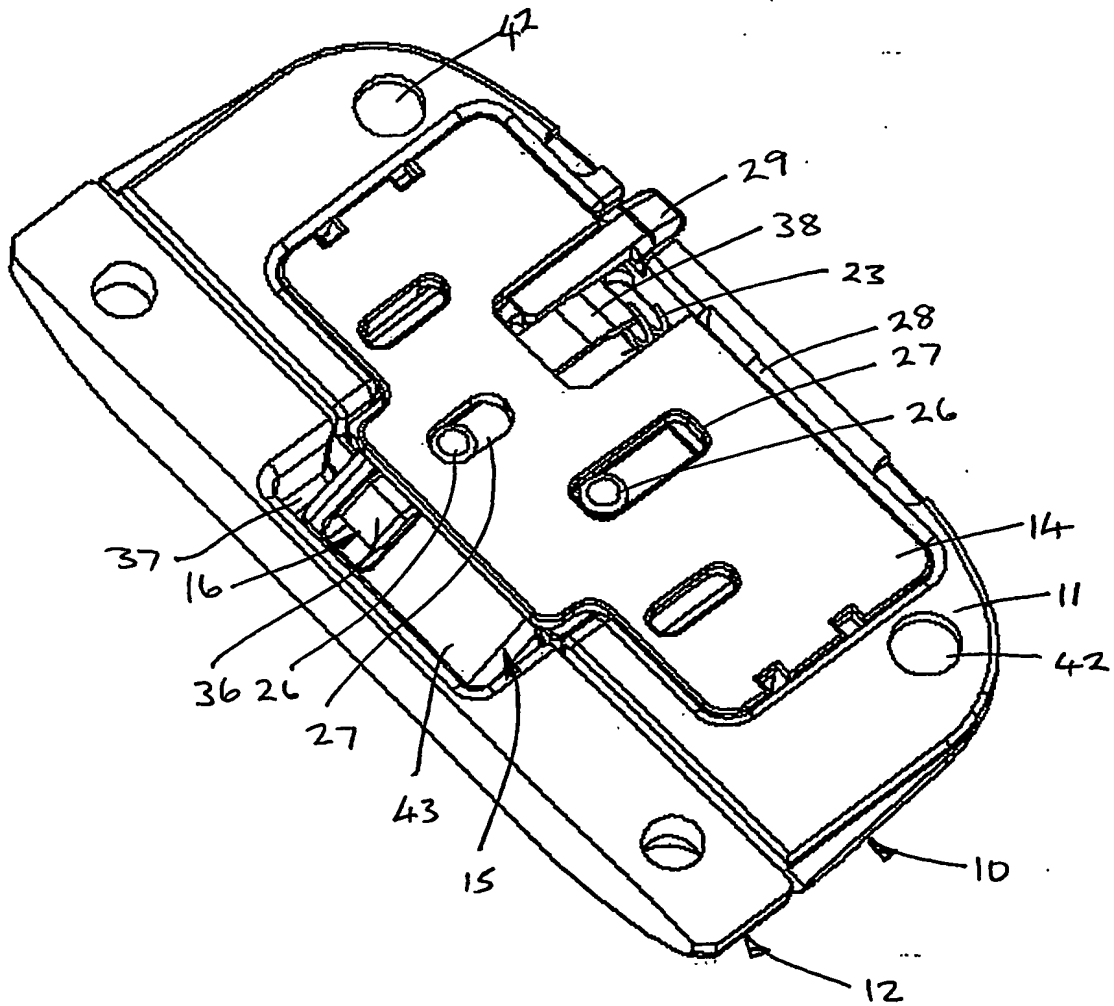


FIG. 5.

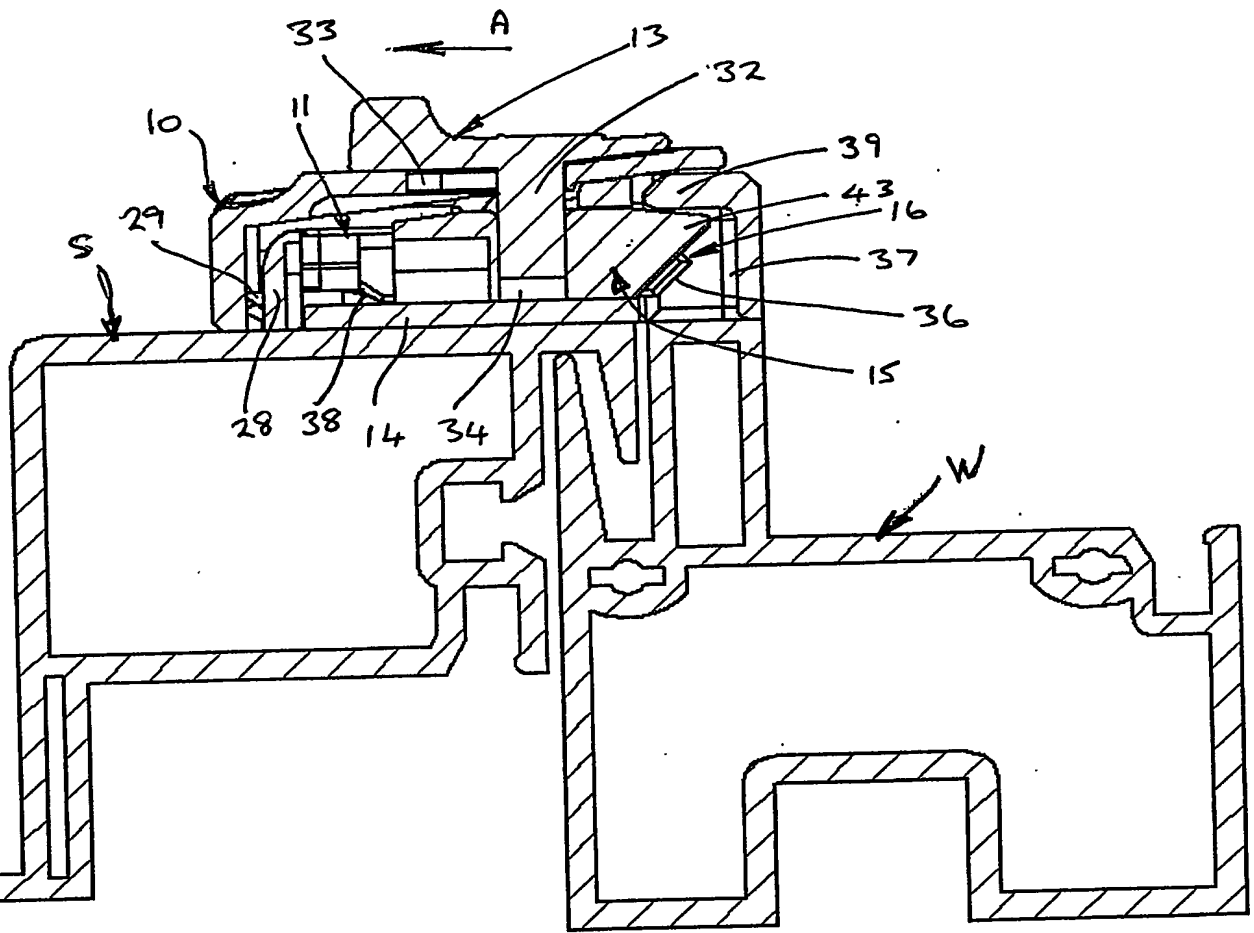


FIG. 6.

